**Journal of Agriculture, Environmental Resources and Management**
ISSN2245-1800(paper) ISSN 2245-2943(online)
7(8)1-800 **March.**.2025: pp1-6

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# Management, Performance and Health Status of Poultry Birds Reared in Akure South Local Government of Ondo State

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## Abstract

*The management, performance and health status of poultry birds reared in three towns in Akure South of Ondo state (Town A - Aponmu, Town B – Oda and Town C – Odopetu) were investigated. Data for the study were collected through interview schedule, on-the-farm assessment and the blood samples were collected randomly from two birds of each town. The deep litter system is the most prevalent in Akure South LGA, constituting 63.84%. Most poultry farmers in the area depend on commercial feed (59.36%) in their poultry feeding, Majority of the poultry farmers (63.51%) feed their birds twice a day, 46.42% of the poultry pen/environment were fairly clean, 19.14% were dirty, and 33.93% were clean. Majority (58.22%) ensured bio-security at the entrance of their pen and 66.93% keep proper record of farm activities. The birds recorded average total weight of 3.91 kg while the average number of eggs lay per week (layers) are 3000 eggs. The average survival and mortality rates of the birds were 81.66% and 18.33% respectively. The purpose of engaging in poultry farming was mainly for revenue generation (66.46%), source of meat in the diet (19.93%) and festival /ceremony (11.98%). Haematological analysis of the birds recorded 31.30%, 10.42g/dl, 4.53 x $10^6$/ml, 9.68 x$10^6$/ml in packed cell volume, haemoglobin concentration, red blood cell count and white blood cell count respectively which fell within the normal reference values. The values for blood differentials recorded also fell within the normal reference values. The study was therefore designed to assess the level of management, performance and health status of poultry birds reared in Akure South L.G.A. It was therefore recommended among others that capacity training of the poultry farmers to enable them cope with challenges of modern poultry farming and commercialization of small scale poultry layer production should be encouraged.*

**Keyword:** Management, Performance, Health status, Poultry birds

**Introduction:** Poultry is used to describe any type of domesticated bird kept for meat and egg production such as domestic fowl and turkey (Ojo, 2013). Broilers are good converters of feed, with average feed consumption of 5-6kg in eight weeks in which 2kg feed will produce 1kg body weight at ratio 2:1 (Awodola-Peters and Yahaya, 2017). Agriculture contributed 24% of Nigerian gross domestic product (GPD) in 2012 (NBS, 2014). Nigerian Agricultural sector comprises for sub-sectors: crops, livestock, fishery and forestry. (Rekwot, Ahmed and Dawang, 2015). Crops contribute 85% to agricultural GPD, livestock production about 10%, fishery and forestry about 4% and 1% respectively in 2006 (Rekwot, *et al.*, 2015). In Nigeria, the major source of animal protein is the livestock industry. Over the years, the contribution of livestock sub sector gross Domestic Products (GDP) have decreased from 5.61% in 1960 to about 2.64% in 2010 remain at 2.64% (CBN, 2010). Livestock production constitutes an important component of the agricultural economy in developing countries and it is an instrument of socioeconomic change, improved income and quality of rural life in Nigeria (Anosike, Naanpose, Rekwot, Sani, Owoshagba and Madziga, 2015). Poultry as an aspect of livestock production outnumbers all other forms of livestock in Nigeria and not surprisingly is found throughout the country (Adeyemo and Onikoyi, 2012). Today, Poultry production has developed from backyard business to a commercially turnover rate and quick returns to investment outlay in the livestock enterprises has made it unique (Adeyemo and Onikoyi, 2012). In (FDLPC, 2014) reported that Nigeria produced 2 million eggs, 12,000 tonnes of poultry meat, while estimated poultry meat consumption per capital was 1.3kilograms (Masika, Van Averbeke and Sonandi, 2015). Poultry, which is next to ruminant as a source of protein in Nigeria, accounts for almost 25% of local meat production. (Nwagu, 2012).

Poultry production is one of the important components of the livestock subsectors in the Nigerian economy, which can be embarked upon by the people with small or no land capital (Ojo, 2013). Nigeria's poultry industry is composed of local unimproved breeds and the high performing commercial breeds. Over the last 50 years, the exotic breed has made an aggressive incursion into the production economy of the country, while the local chicken is driven by traditional system management, the exotic breeds have stimulated an industrial advancement of the poultry industry through specialization as egg or meat type strains satisfy the increasing demand for poultry commodity in the food market (Rekwot *et al*, 2015). It provides direct employment for large number of rural and urban people and indirect employment to suppliers of products and services such as grain farmers feed meal operators as well as those producing various goods and services used to support poultry production and marketing activities (Adeyemo and Onikoyi, 2012). Poultry is considered to be a means of livelihood and a way of achieving a certain level of economic independence in Nigeria. The primary purpose of poultry in all parts of the country is for both dietary and economic reasons (Ogundipe and Sanni, 2012). Poultry as an aspect of livestock

production is important to the biological needs, economic and social development of the people of the nation (Oladeebo and Ambe-Lamidi, 2017). However, the contribution of poultry production (meat and egg) to total livestock output increased from 26% in 1995 to 27% in 1999 with an increase in egg production alone accounting for about 13% during the period (Ojo, 2013). The development of poultry industry has also been described as the fastest means of prevailing in most of the developing countries. The poultry industry, if properly harnessed can also serve as a source of foreign earnings complementing crude oil which at present constitutes the main source of foreign earning in Nigeria ((Rekwot *et al*, 2015). In poultry production, small scale poultry small scale poultry production represents one of the few opportunities for saving, investment and security against risk. It accounts for approximately 90% of total poultry production (Sonaiya, Branckaert, and Gueye, 2019).

Poultry production in rural parts of the country is more important because of divergent roles it plays (Nwagu, 2012). Poultry meat and egg offers considerable potential for meeting human needs for dietary animal supply (Iwuji, Nawpi, Ogbuewu, Kadurumba, Egenuka and Okere 2017). This single reason among others has made enterprise unattractive and unpopular among small medium, as well as large scale poultry farmers. Despite the leading roles of poultry production in the livestock industry, it is not without challenges. These challenges have slowed down the rate of production in the industry. High rate of diseases and pest attack as a major challenge in the poultry production was reported by (Ajala, Nwagu, and Otchere, 2017). Lack of access to loan and credit procurement, high rate of mortality and technical knowledge were also identified by (Anosike *et al*, 2015) opined that most people go into poultry farming simply because of the huge profit they see others getting but failed to acquire the necessary knowledge involved in poultry production. Ajala, Nwagu and Otchere, (2017) also reported that mortality mostly occur at brooding stage, High cost of feeds and veterinary services was identified by (Adeyemo and Onikoyi 2012) Recently especially in Ondo state, sourcing poultry for research works has turned into a nightmare and are very costly when seen, most times the needed number may not be available because of high cost of birds. Therefore it becomes imperative to conduct this study on the assessment of poultry production in Akure South Local Government Area with emphasis on their management, performance, and health status of poultry birds for the realization of possible solutions to challenges facing poultry industry in the country.

**Materials and Methods: Study Area:** This study lasted for three months and covered three towns (Town A - Aponmu, Town B – Oda and Town C - Odopetu) in Akure South Local Government Area of Ondo State. Ondo state is situated in the south west rain vegetation belt of Nigeria. It lies within latitudes $7^0$ 10'N of Equator and longitude $3^0$ 2'East of Greenish Meridian and Altitude 76mm. It is located in the derived savannah zone of South-Western Nigeria. The area is dominated by plains 200m above sea level. It has a humid climate and annual rainfall of about 1700 to 2500mmwhich is concentrated almost entirely between March and October. Average relative humility is about 80% with up to 90% occurring during rainy season. The mean daily maximum air temperature ranges from 28 to 35$^o$C while mean daily minimum ranges from 19 to 24$^o$C (Acuweather, 2018).

**Population of the study:** The population of the study consisted of all the poultry farmers in Akure south Local Government Area of Ondo state. The predominant occupations of the farmers are arable crop production, and livestock production especially poultry rearing (OSM 2016).

**Field Survey:** A preliminary survey of the study area was carried out to determine areas of intensive and widespread poultry production. The researcher also used the opportunity to familiarize himself with the farms and farmers group in these areas before distribution of research questionnaire.

**Data collection**: Data for assessment of poultry reared in Akure South were collected based on the parameters outlined below, through direct observation and oral interview on the farm assessment.

- **Management** – Management practices were evaluated based on type of poultry rear, housing, feeding, Medication/Vaccination, Cleanliness of the poultry house.
- **Performance and production-** this was assessed in terms of live weight, Number of eggs lay per week, monthly income, Morbidity rate.
- **Purpose of poultry farming**- Assessment of the reasons why each farmer engaged in poultry farming was classified into meat production, source of revenues, source of manure, Research.
- **Constraints to poultry production-** This was assessed on the basis of fund, space predators/theft, diseases.

- **Blood parameters**- the blood parameters analyzed were packed cell volume, haemoglobin concentration, red blood cell count, white blood cell counts and white blood cell differentials. In each of the zone, blood samples were collected from two farms that were evenly distributed for haematological analysis. The blood samples were collected via the wings using needle and syringe. The blood was discharged into Ethylene Diamine Tetra-acetic Acid (EDTA) bottles and was taken to the laboratory for analysis as outlined by Ochei and Kohhalkar (2010).

**Sample size**- A total of 60 poultry farmers were identified in Akure South (Town 1 = 20, Town 2 = 20, Town 3 = 20) and were assessed physically and through interview. Only live weight of the birds was measured using scale.

**Statistical Analysis**- the data base was prepared using Microsoft Excel and the mean values and percentage distribution of the various parameters computed using IBM SPSS software (2013).

**Result and Disicussion: Management parameter of poultry farmers:** Management parameters of poultry farms assessed in Akure South are presented in Table 1. The deep litter housing was the most

predominant in Akure South recording an average total of 63.84% than 28.75% and 7.49% recorded for battery cage and fold unit respectively. The record showed that greater proportion (59.36%) of farmers feed their birds with commercial feed while a small proportion of farmers (40.64%) formulate their own feed. This record indicates that some farmers in rural areas can supply or afford their own feed raw ingredients in order to reduce cost. Results from times of feeding the birds showed that majority of the farmers (63.51%) feed their birds twice a day while minority (56.49%) feed only once a day. This result is in agreement with finding of Olaoye *et al*., (2015) that majority of the poultry farmers feed their birds twice daily for higher output and quick returns. The result on vaccination program showed that majority (53.54%) of the farmers engage regular services of the veterinary officers, smaller proportion (30.87%) of the farmers invite veterinary services once in a while (15.59%) has no business with vaccination programmes. In terms of cleanliness of the poultry house, 46.92% were fairy clean, 19.14% were dirty, while 33.93% were clean. It was observed that farmers who recorded clean poultry environment were those who have knowledge (formal or informal) of poultry production and they also keep proper records. Large proportion (58.22%) observed bio-security by providing foot sip at the entrance of the pen while small proportion (41.78%) of the farmer did not see any need for bio-security. Banji and Okuade (2015) observed that bio-security is a vital means of guarding against reptiles, venous insects, ecto/endo parasites in the farm. In terms of record keeping, 66.93% keep proper record of all activities in the farm while only 33.06% ignored record keeping. This may be due to ignorance or lack of training/ knowledge in record keeping.

**Performance and Production parameters of birds Poultry:** Table 2 shows the performance and production parameter of poultry birds reared in the 3 zones of Akure south. The birds recorded average total weight of 3.91 kg with 3.94kg, 3.96kg, 3.84kg from town A, B and C respectively. Number of eggs laid per week for the layer birds recorded an average of 3000 eggs with 3000 eggs, 2500 eggs and 3500eggs for zone A, B and C respectively. The results of mortality rate and survival rate recorded average of 18.33% and 81.66% respectively for all the towns. Oseni, (2012) stated that mortality rate and survival rate in any farm are largely dependent on the type of management, such as level of nutrition, feeding schedule, disease and parasites prevention. These values are similar to the values obtained by Iwuji *et al*., (2017) who engaged in a rabbit management in Imo state.

**Purpose of poultry production**: The survey result of this study on the purpose of poultry farming in Akure south (Table 3) reveals that the farmers who rear poultry for meat consumption comprised 19.93%, those that raised poultry for the purpose of revenue generation were 66.46%, Festival and research/gift were 11.98% and 2.17% respectively. It was observed that the purpose of poultry farming affected some of the management practices carried out by the farmer. For instance, those who reared poultry for research though very low proportion were kept plenty of farm records and constituted major percentage of farm cleanliness recorded.

***Table 1: Distribution (%) of Management parameters of poultry farmers***

| Parameters | Town A | Town B | Town C | Total Average |
|---|---|---|---|---|
| ***Housing*** | | | | |
| Deep Litter | 56.76 | 64.56 | 70.20 | 63.84 |
| Battery cage | 40.45 | 30.45 | 15.37 | 28.75 |
| Fold Unit | 2.79 | 2.99 | 1.78 | 7.49 |
| ***Feeding type*** | | | | |
| Commercial feed | 66.15 | 81.25 | 60.67 | 59.36 |
| Formulated Feed | 15.38 | 6.25 | 19.01 | 40.64 |
| ***Times of Feeding*** | | | | |
| Once a day | 29.17 | 40.86 | 39.46 | 36.49 |
| Twice a day | 70.83 | 59.14 | 60.54 | 63.51 |
| ***Vaccination programmes*** | | | | |
| As scheduled by the veterinary | 40.43 | 55.65 | 64.56 | 53.54 |
| Once in a while | 35.56 | 39.34 | 16.76 | 30.87 |
| None | 23.02 | 5.01 | 18.68 | 15.59 |
| ***Cleanliness of the Poultry House*** | | | | |
| Dirty | 20.77 | 20.00 | 16.67 | 19.14 |
| Fairly Clean | 40.77 | 37.50 | 62.50 | 46.92 |
| Clean | 38.46 | 39.50 | 20.83 | 33.93 |
| ***Foot Dip at the Entrance of pen*** | | | | |
| Provided | 64.34 | 53.56 | 56.76 | 58.22 |
| None | 35.65 | 46.45 | 43.24 | 41.78 |
| ***Record Keeping*** | | | | |

| | | | | |
|---|---|---|---|---|
| Keep proper record | 79.43 | 60.49 | 68.87 | 66.93 |
| None | 28.56 | 39.51 | 31.12 | 33.06 |

**Source:** Field survey, 2024. Town A = Aponmu, Town B = Oda, Town C = Odopetu

***Table 2: Distribution of Performance and production parameters of poultry reared in Akure South***

| Parameters | Town A | Town B | Town C | Total Average |
|---|---|---|---|---|
| Live weight in (kg) (Broilers) | 3.94 | 3.96 | 3.84 | 3.91 |
| No of egg laid per week (layers) | 3000 | 2500 | 3500 | 3000 |
| No of Broilers sold in a day | 120 | 130 | 150 | 133.3 |
| Mortality rate (%) | 30 | 12 | 13 | 18.33 |
| Survival rate (%) | 70 | 88 | 87 | 81.66 |

Source: Field Survey, 2024 Town A = Aponmu, Town B = Oda, Town C = Odopetu

***Table 3: Distribution (%) of the Purposes of poultry production Akure South***

| Parameters | Town A | Town C | Town C | Total |
|---|---|---|---|---|
| Meat production | 17.15 | 20.50 | 22.33 | 19.93 |
| Source of Income | 71.23 | 65.75 | 62.40 | 66.46 |
| Festival | 8.38 | 12.12 | 12.56 | 11.98 |
| Gift/ Research | 3.20 | 1.40 | 2.71 | 2.17 |

***Source: Field Survey 2024*** Town A = Aponmu, Town B = Oda, Town C = Odopetu

***Table 4: Distribution (%) of the constraints to poultry production***

| Parameters | Town A | Town B | Town C | Total |
|---|---|---|---|---|
| Fund/Capital | 38.15 | 55.74 | 58.33 | 50.74 |
| Space | 29.98 | 18.10 | 14.16 | 20.75 |
| Predator/theft | 5.67 | 4.50 | 4.17 | 4.78 |
| Diseases | 12.58 | 8.23 | 13.29 | 11.37 |
| Inadequate market | 11.34 | 11.12 | 9.12 | 10.53 |
| Environmental Hazards | 2.28 | 2.31 | 0.93 | 1.83 |

***Source: Field survey 2024*** Town A = Aponmu, Town B = Oda, Town C = Odopetu

***Table 5: Blood parameters of poultry birds reared in Akure south***

| Parameters | Town A | Town B | Town C | Total | Ref Value |
|---|---|---|---|---|---|
| Packed cell volume (PCV) (%) | 31.45 | 32.67 | 29.78 | 31.30 | 30 - 50 |
| Haemoglobin (Hb) (g/dl) | 11.54 | 6.98 | 12.76 | 10.42 | 10 - 15 |
| Red blood cells (x $10^6$/ml) | 5.38 | 3.71 | 4.50 | 4.53 | 4.5 - 6.0 |
| White blood cells (x $10^3$/ml) | 8.37 | 9.28 | 11.41 | 9.68 | 8 - 13 |
| Lymphocytes (%) | 53.30 | 52.12 | 61.40 | 55.60 | 40 - 60 |
| Heterophils (%) | 35.23 | 42.70 | 36.91 | 38.27 | 35 - 43 |
| Monocytes (%) | 3.10 | 3.54 | 1.89 | 2.84 | 1 - 4 |
| Basophils (%) | 2.85 | 3.98 | 4.00 | 3.61 | 1 - 7 |

***Source: Field survey 2024*** Town A = Aponmu, Town B = Oda, Town C = Odopetu

**Constraints to poultry production in Akure south**: The results of constraints encountered by the poultry farmers are shown in Table 4. According to the results, 50.74% of the constraints are fund-based while space, predators/theft, diseases, inadequate market and environmental hazards constitute 20.75%, 4.78%, 11.37%, 10.53% and 1.83% respectively. It is not quite surprising that greater percentage of the farmers complained of funds as the major constraints. Ajala *et al*. (2017) reported that farmers do not have access to loans and credit procurement to start and sustain their poultry business. Aromolaran *et al*. (2013) also reported that most poultry farmers go into poultry business with high expectation of generating revenue but due to starting capital that are required in starting the venture, they end up struggling with low capital income. The result on lack of space for poultry production agree with that of Anosike *et al*. (2015) who identified that inadequate space as a major challenge facing poultry production. Poultry pen for commercial purpose should be sited in an environment that is far away from people residence to avoid air pollution and contamination. High rate of disease and pest attack are identified as a major challenge in poultry production. This is in agreement with the report from Adeyemo and Onikoyi, (2012) that majority of the poultry farmers has abandoned their business due to disease uncertainty associated with poultry. There is need for veterinary intervention in order to cub losses due to disease as suggested by Agbato, (2015).

**Blood parameter of poultry birds**

The results of blood parameters of the poultry birds were shown in Table 5. The blood parameters on selected poultry birds recorded average values of 31.3%, 10.42g/dl, $4.53x10^6$/ml and $9.68 x10^3$/ml for packed cell volume (PCV),

haemoglobin (Hb) concentration, red blood cell count (RBC) and white blood cell counts (WBC) respectively as shown in Table 5. The values for blood differentials recorded 55.60, 38.27, 1.67, 2.84 and 3.61% for lymphocytes, heterophils, monocytes and basophils respectively. The values obtained for all the parameters measured for the poultry fell within the reference values documented for poultry (Merck, 2012). This could be attributed to rich nutrition of birds, vaccination schedule of the birds, clean environment and biosecurity maintained in the management practices as seen in Table 1. Good hygienic environment, quality feed, disease control can reduce mortality and morbidity in the farm to a level of degree (Ogundipe and Sanni, 2012).

**Conclusion**: It was observed during the survey that poultry farming was predominant in Akure South when compared with other agricultural engagement of the farmers. Most of the poultry farms were adequately managed in terms of nutrition, housing and hygiene which may be the cause of high performance and production. The purposes of the majority of farmers engaging in the business were to generate revenue, which they actually realized as evident in the performance of their birds.

**Recommendations:** Based on the findings of this study, the following recommendations were made:**;** Rural poultry farmers should form a cooperative society in order to access loan so as to combat their capital input problems.

; Increased research in poultry so as to develop modern production techniques that will help increase poultry performance and production.; There is need for veterinary intervention in order to curb mortality due to disease outbreak.;Capacity training of poultry farmers to enable them cope with challenges of modern poultry farming and commercialization of small scale poultry layer production should be encouraged.

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